



Australian Bureau of Statistics

6102.0 - Labour Statistics: Concepts, Sources and Methods, 2001

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Contents >> Concepts and Sources >> Chapter 13. Labour Productivity

INTRODUCTION

13.1 The broadest definition of 'productivity', from the ILO, is "the ratio between output and the total input of factors required to achieve it". In this sense, productivity is "the end result of a complex social process including: science, research and development, education, technology, management, production facilities, workers' and labour organisations".

13.2 Most analyses seeking to measure productivity have confined themselves to a partial, or single factor, measure, as opposed to total factor (or multifactor) productivity. Single factor measures of productivity are expressed as a ratio between a given measure of output and a given measure of one factor of production (labour, capital, raw materials, etc.). It follows that there are many measures of productivity, each of which relates to a particular factor of production. Thus it is possible to speak of the productivity of labour, of capital, of raw materials, of power, etc. Such measures reflect the growth in output not accounted for by the growth in that particular factor of production. Thus, the ratio of output to hours worked - often referred to as a measure of labour productivity - reflects the growth in output attributable to all factors of production **other** than hours worked. Often the measure used varies in accordance with the level at which productivity is analysed, e.g. plant, industry, branch of the economy or the economy as a whole.

13.3 The first investigations into productivity were concerned with labour productivity and many more studies have been devoted to it since. It is perhaps because human labour is a universal key resource that labour productivity has remained the centre of interest. It also helps to explain how the term 'productivity' has often been - and often still is - used to mean 'labour productivity'.

CONCEPTS AND INTERNATIONAL GUIDELINES

13.4 While the ILO has published two studies (in 1951 and 1969) on the measurement of labour productivity, no international standards have been promulgated by that organisation. The view taken in the 1969 study was that, while it was useful to have a set of definitions which correspond to the various measures of productivity, it was premature to set standards for a single productivity ratio for each measure. At the same time it was recognised that time worked, labour force, and physical and value-based measures were all appropriate concepts for particular purposes.

13.5 Considerations such as those led an ILO Working Group on Productivity Statistics to make recommendations, especially on the economic coverage of productivity series, the choice of units of measurement for output, and the corresponding labour input. While no recommendation was made as to which concept was most suitable for measuring national output, several participants in the Working Group preferred estimates at constant prices of gross domestic product at factor cost. In respect of the measurement of labour inputs, the concern was to ensure that account was taken of all the activities of all persons engaged in production.

13.6 The Working Group considered that the improvement of labour productivity statistics

depended on better national statistics on output, and on the existence of corresponding data for employment or hours of work. Similarly, it was considered that the ability to compare the trend and level of productivity between one country and another improved with the use of comparable concepts for the definition of output, input and prices, and the wider use of international standards in existence in these fields. The standards being referred to, in particular, were those of the International Conference of Labour Statisticians in respect of input, the United Nations System of National Accounts in respect of output, and the International Standard Industrial Classification in respect of scope and classification.

ABS DEFINITIONS, METHODOLOGY AND SOURCES

13.7 The ABS recognises that the level of gross domestic product and changes in real gross domestic product are a function of many different factors including capital, labour, technical knowledge, scale of production and managerial efficiency. Changes in any one of these factors can result in productivity changes. While it is impossible to objectively measure the role of these factors separately, it is recognised that one of the most important and widely accepted analytical series, which is used as a proxy for labour productivity, is real gross domestic product per hour worked.

13.8 Estimates on this basis for the market sector as a whole and for each industry in the market sector are compiled by the ABS and published in **Australian System Of National Accounts** (Cat. no. 5204.0). Quarterly indexes of gross domestic product per hour worked are published for the market sector and for the whole economy in **Australian National Accounts: National Income, Expenditure and Product** (Cat. no. 5206.0). The ABS also publishes annual indexes of multifactor productivity for the market sector in Cat. no. 5204.0.

LABOUR INPUT

13.9 The choice of a particular series to represent labour input depends upon the use to which the measures are to be put and the nature of the available data. For many purposes it would be desirable for changes in the quality of labour employed (such as the proportion of skilled to unskilled employees) to be reflected in measures of labour input. However, because of data limitations, the measure of labour input used in compiling the estimates presented in **Australian System Of National Accounts** (Cat. no. 5204.0) and **Australian National Accounts: National Income, Expenditure and Product** (Cat. no. 5206.0) is hours worked by total persons employed.

13.10 The estimates of hours worked are derived as the product of employment and average hours worked. The employment data comprise all labour engaged in the production of goods and services and include not only civilian wage and salary earners but also employers, self-employed persons, persons working one hour or more without pay in a family business or on a farm, and members of the Australian defence forces. The annual employment and average hours worked figures are simple averages based on the available observations during the year. The actual estimates of employment are drawn from a variety of ABS sources (the major one being the Labour Force Survey) and from the Department of Defence. The estimates of average hours worked are taken from the Labour Force Survey. For further details refer to Chapter 27 of **Australian National Accounts: Concepts, Sources and Methods** (Cat. no. 5216.0).

CHAIN VOLUME ESTIMATES OF GROSS DOMESTIC PRODUCT

13.11 The estimates of real gross domestic product used in the derivation of the ABS labour

productivity statistics are annually reweighted chain Laspeyres volume measures. The concepts and definitions used in deriving chain volume estimates are explained in Chapter 10 of **Australian National Accounts: Concepts, Sources and Methods** (Cat. No. 5216.0).

GROSS DOMESTIC PRODUCT PER HOUR WORKED

13.12 In **Australian National Accounts: National Income, Expenditure and Product** (Cat. no. 5206.0) and **Australian System Of National Accounts** (Cat. no. 5204.0) the term 'gross domestic product per hour worked' (and similar terminology for the industry statistics) is generally used in preference to 'labour productivity' because:

- the term is more self-explanatory; and
- the measure does not attribute change in gross domestic product to specific factors of production.

INDUSTRY CLASSIFICATION

13.13 The industry dissections of gross domestic product are referred to as industry gross value added. They and the associated industry estimates of hours worked are derived as consistently as possible in accordance with the **Australian and New Zealand Standard Industrial Classification, 1993** (Cat. no. 1292.0).

[Previous Page](#)

[Next Page](#)

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